ABSTRAK

Fazril Mantovani (2022320059)
Perancangan Aplikasi Pengelolaan Transaksi Bank Sampah Berbasis Website Pada RW 09 Kelurahan Kranji

Pengelolaan Bank Sampah Hijau Berkah selama ini masih berjalan secara manual menggunakan buku fisik, sehingga rentan terhadap kesalahan pencatatan, kehilangan arsip, dan celah manipulasi data timbangan yang berujung pada turunnya kepercayaan warga. Penelitian ini bertujuan merancang dan membangun sistem informasi bank sampah berbasis website untuk mengotomatisasi proses administrasi sekaligus menghadirkan keterbukaan informasi bagi nasabah. Sistem dikembangkan dengan metode *prototyping* melalui tahapan observasi lapangan, wawancara, dan studi pustaka, lalu dibangun menggunakan Laravel, Next.js, MySQL, serta dijalankan pada *Virtual Private Server* (VPS) Ubuntu Server LTS. Temuan utama penelitian ini adalah keberhasilan mengintegrasikan validasi timbangan berbasis IoT ke dalam sistem, sehingga data berat sampah tercatat secara otomatis tanpa campur tangan manual. Sistem yang dihasilkan mencakup fitur registrasi nasabah, pencatatan transaksi setor sampah, pengelolaan saldo tabungan, antrian digital, konversi sampah ke emas, hingga cetak laporan PDF dengan pembagian hak akses tiga peran utama yaitu Admin, Petugas, dan Nasabah. Pengujian *Black Box Testing* membuktikan seluruh fungsi berjalan tanpa kendala berarti, dan *User Acceptance Testing* (UAT) dari 36 responden menghasilkan skor 85,65% berkategori sangat baik, sehingga sistem ini dinilai layak dan siap digunakan secara penuh dalam mendukung operasional bank sampah tingkat RW.

Kata Kunci: Bank Sampah, IoT, Metode *Prototyping*, Sistem Informasi, Transparansi Data

ABSTRACT

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Design of a Website-Based Waste Bank Transaction Management Application for RW 09, Kranji Urban Village

The operational management of Hijau Berkah Waste Bank in RW 09, Kranji Sub District has long depnded on manual record keeping through physical ledgers, leaving it exposed to recording errors, data loss, and weight manipulation that slowly erodes community trust. This study aims to design and develop a web based waste bank information system to automate administrative processes while ensuring data transparency for customers. The system was developed using the Prototyping method through field observation, interviews, and literature review, built with Laravel, Next.js, and MySQL, and deployed on a Virtual Private Server (VPS) running Ubuntu Server LTS. The key contribution of this research is successful integration of IoT based weight validation, enabling automatic and tamper resistant data recording without manual input. The resulting system includes customer registration, waste deposit transactions, savings balance management, digital queuing, waste to gold conversion, and PDF report generation, supported by three access roles: Admin, Officer, and Customer. Black Box Testing confirmed all functional features operated without critical issues, and User Acceptance Testing (UAT) conducted with 36 respondents produced an average score of 85,65%, classified as excellent, indicating the system is ready for full operational deployment in supporting community level waste bank management.

Key Word: Data Transparency, Information System, IoT, Prototyping Method, Waste Bank